

Notice of Allowability

Application No.

10/614,418

Examiner

Nguyen T Ha

Applicant(s)

BASCERI ET AL.

Art Unit

2831

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 8/16/2004.
2. ☒ The allowed claim(s) is/are 6-40.
3. ☒ The drawings filed on 03 July 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date <u>0804</u> | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, filed 8/16/2004, with respect to a non-final rejection have been fully considered and are persuasive. The non-final rejection of 5/18/2004 has been withdrawn (according to the prior art as it does not qualify to the present application under 102). Moreover, the applicant has argued that Farooq and Baum are silent with respect to a capacitor structure comprising a first nucleation layer consisting essentially of a metal formed over a bottom electrode, and a BST film formed over the first nucleation layer, the BST film having a substantially uniform crystal orientation, a first nucleation layer made of NiO formed over a base layer, a second nucleation layer formed over a bottom electrode. The examiner finds this argument persuasive. Therefore, the examiner made decision to allow these limitations over the prior art of record.

Allowable Subject Matter

2. Claims 6-40 are allowed.

The following is an examiner's statement of reasons for allowance:

With respect to claims 6-11, the prior art alone or in combination does not teach the limitation of a first nucleation layer formed over the base layer and selected to induce a substantially uniform crystal orientation in subsequent layers formed thereon.

With respect to claims 12-19, the prior art alone or in combination does not teach the limitation of a capacitor structure comprising a first nucleation layer consisting

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essentially of a metal formed over a bottom electrode, and a BST film formed over the first nucleation layer, the BST film having a substantially uniform crystal orientation.

With respect to claims 20-24, the prior art alone or in combination does not teach the limitation of a capacitor comprising a first nucleation layer made of NiO formed over a base layer, a second nucleation layer formed over a bottom electrode, and a BST film formed over the first nucleation layer, the BST film having a substantially uniform crystal orientation, and a BST film formed over the first nucleation layer, the BST film having a substantially uniform crystal orientation.

With respect to claims 25-30, the prior art alone or in combination does not teach the limitation of a capacitor comprising a first nucleation layer made of a metal formed over a bottom electrode, the first nucleation layer being a material selected from the group consisting of Ti, Nb and Mn, and a BST film formed over the first nucleation layer, the BST film having a substantially uniform crystal orientation.

With respect to claims 31-35, the prior art alone or in combination does not teach the limitation of a capacitor comprising a first nucleation layer made of a metal formed over a bottom electrode, a second nucleation layer between a base layer and the bottom electrode, and a BST film formed over the first nucleation layer, the BST film having a substantially uniform crystal orientation.

With respect to claims 36-40, the prior art alone or in combination does not teach the limitations of a capacitor comprising a BST film formed over the first nucleation layer, the BST film having a substantially uniform crystal orientation.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

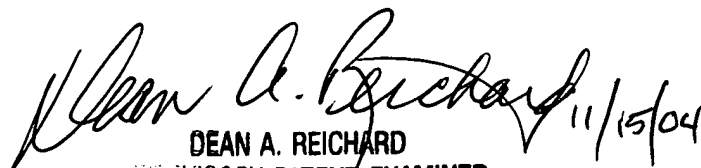
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nguyen T Ha whose telephone number is 571-272-1974. The examiner can normally be reached on Monday-Friday from 8:30AM to 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on 571-272-2800 ext. 31. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nguyen T. Ha
November 4, 2004


DEAN A. REICHARD
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800